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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,654	06/28/2000	Jeff Pace	051252-5020	6246

9629 7590 08/18/2003

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WASHINGTON, DC 20004

EXAMINER

KIM, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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3752

18

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/605,654

Applicant(s)

PACE ET AL.

Examiner

Christopher S. Kim

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 2,5 and 7-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendment filed June 19, 2003 is acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Election/Restrictions***

3. Applicant's traversal of the restriction requirement in Paper No. 17 is acknowledged. The traversal is on the ground(s) that the examiner has not provided viable evidence of a materially different apparatus. This is not found persuasive because viable evidence has been provided: apparatus can be used for making a different product (spray pattern) which does not require "at least two portions of fuel, the fuel being combustible in a combustion chamber of an internal combustion engine, wherein a first portion includes a fan shape spray of fuel and the second portion includes at least one plume of fuel adjacent the fan shape spray."

The requirement is still deemed proper and is therefore made FINAL.

***Drawings***

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The description of the drawings, on page 2 of applicant's specification, indicates figures 1 and 2 showing a "conventional" fuel injector and spray pattern, respectively. Figure 2 is labeled "Prior Art". Therefore, figure 1 should also be labeled "Prior Art". Additionally, the specification recites, on page 6, in lines 11-13, "As compared to the modified fuel injector design of the present invention, for the fuel injector shown in Fig. 1, the outlet seat 64 for the fuel injector assembly 10 has a single conventional seat passage 76 for fuel passage, as described earlier."

***Claim Rejections - 35 USC § 102/103***

5. Claims 1, 3, 4 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rembold et al. (WO97/49911).

US Patent No. 6,027,050 is provided for translation. Rembold et al. discloses, in figure 10, a fuel injector comprising: a body 27; a needle 39; a seat 41'; a plurality of passages 34'.

Rembold et al. discloses, in figure 6 and in column 6, lines 18-25, the fuel passages being offset a distance  $d_1$  and  $d_2$  from the longitudinal axis A so that fuel can

Art Unit: 3752

strike against the surface of valve seat 41'. From figure 6, it can be seen that distance  $d_1$  and  $d_2$  can range in value from 0 to  $\frac{1}{2}$  the diameter of the outlet.

Even if Rembold et al. does not disclose the range for distance  $d_1$  and  $d_2$ , It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided a distance  $d_1 = 0$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

6. Applicant's arguments filed June 19, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that Rembold et al.'s central axis of passage 34 is offset instead of intersecting the longitudinal axis, Rembold et al. discloses, in figure 6 and in column 6, lines 18-25, the fuel passages being offset a distance  $d_1$  and  $d_2$  from the longitudinal axis A so that fuel can strike against the surface of valve seat 41'. From figure 6, it can be seen that distance  $d_1$  and  $d_2$  can range in value from 0 to  $\frac{1}{2}$  the diameter of the outlet.

Even if Rembold et al. does not disclose the range for distance  $d_1$  and  $d_2$ , It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided a distance  $d_1 = 0$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Kim whose telephone number is (703) 308-8336. The examiner can normally be reached on Monday - Thursday, 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Y. Mar can be reached on (703) 308-2087. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Art Unit: 3752

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

A handwritten signature in black ink, appearing to read 'C. Kim', with a long horizontal flourish extending to the right.

Christopher S. Kim  
Primary Examiner  
Art Unit 3752

CK  
August 16, 2003